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JUN 29 2007

AMENDMENTS TO THE CLAIMS

1. (currently amended) An image encoding apparatus for encoding an image signal according to a JPEG2000 standard, comprising:

a wavelet converter which acquires a plurality of conversion coefficients by performing wavelet conversion on said image signal;

a modeling unit which generates a plurality of symbols representing said plurality of conversion coefficients and a plurality of contexts by performing a modeling process on said plurality of conversion coefficients obtained by said wavelet converter; and

an arithmetic encoder which performs arithmetic encoding using said plurality of symbols and said plurality of contexts generated by said modeling unit,

wherein said arithmetic encoder discriminates whether each of said symbols is an MPS (More Probable Symbol) or LPS (Less Probable Symbol), executes CODEMPS in a case where it is discriminated that said symbol is an MPS and executes either CODEMPS or CODELPS according to a predetermined condition in a case where it is discriminated that said symbol is an LPS, and

wherein the predetermined condition is based on a probability of occurrence of an LPS corresponding to a current context.

2. (currently amended) The An image encoding apparatus for encoding an image signal according to a JPEG2000 standard according to claim 1, comprising:

a wavelet converter which acquires a plurality of conversion coefficients by performing wavelet conversion on said image signal;

a modeling unit which generates a plurality of symbols representing said plurality of conversion coefficients and a plurality of contexts by performing a modeling process on said plurality of conversion coefficients obtained by said wavelet converter; and

an arithmetic encoder which performs arithmetic encoding using said plurality of symbols and said plurality of contexts generated by said modeling unit,

wherein said arithmetic encoder discriminates whether each of said symbols is an MPS (More Probable Symbol) or LPS (Less Probable Symbol), executes CODEMPS in a case where it is discriminated that said symbol is an MPS and executes either CODEMPS or CODELPS according to a predetermined condition in a case where it is discriminated that said symbol is an LPS, and

wherein in a case where it is discriminated that said symbol is an LPS, said arithmetic encoder compares a probability of occurrence of an LPS corresponding to a current context with a predetermined threshold value, executes said CODEMPS in a case where said probability of occurrence is greater than said threshold value and executes said CODELPS in a case where said probability of occurrence is not greater than said threshold value.

3. (original) The image encoding apparatus according to claim 2, wherein in a case where said probability of occurrence is greater than said threshold value, said arithmetic encoder changes a value of said symbol and executes said CODEMPS.

4. (currently amended) The image encoding apparatus according to claim 3, wherein:

said modeling unit classifies said plurality of conversion coefficients to a plurality of bit planes and classifies said plurality of conversion coefficients to a plurality of encoding passes to thereby generate said plurality of symbols,

said threshold value is independently set for each of said plurality of encoding passes, and

said arithmetic encoder uses different threshold values for said plurality of encoding passes respectively.

5. (currently amended) The image encoding apparatus according to claim 3, wherein:

said wavelet converter divides an image represented by said image signal into a plurality of sub bands by wavelet conversion,

said threshold value is independently set for each of said plurality of sub bands, and

said arithmetic encoder uses different threshold values for said plurality of sub bands respectively.

6. (original) The image encoding apparatus according to claim 5, wherein that threshold value which is associated with a sub band LL in said plurality of sub bands is set larger than those threshold values which are associated with the other sub bands and that threshold value which is associated with a sub band HH is set smaller than those threshold values which are associated with the other sub bands.

7. (original) The image encoding apparatus according to claim 6, wherein said threshold value associated with said sub band LL is set larger than a value said probability of occurrence can

take.

8. (original) The image encoding apparatus according to claim 3, wherein in a case where it is discriminated that said symbol is an LPS, said arithmetic encoder discriminates whether or not an encoding pass to be processed is a degrading pass to degrade an image quality as a result of execution of said CODEMPS in a case where said symbol is an LPS, executes said CODELPS in a case where it is discriminated that said encoding pass is said degrading pass, and compares said probability of occurrence with said threshold value in a case where it is discriminated that said encoding pass is not said degrading pass.

9. (currently amended) An image encoding method of encoding an image signal according to a JPEG2000 standard, comprising:

acquiring a plurality of conversion coefficients by performing wavelet conversion on said image signal;

generating a plurality of symbols representing said plurality of conversion coefficients and a plurality of contexts by performing a modeling process on said plurality of conversion coefficients obtained by said wavelet conversion; and

performing arithmetic encoding using said plurality of symbols and said plurality of contexts generated by said modeling process,

wherein said performing arithmetic encoding includes discriminating whether each of said symbols is an MPS (More Probable Symbol) or LPS (Less Probable Symbol), executing CODEMPS in a case where it is discriminated that said symbol is an MPS and executing either

CODEMPS or CODELPS according to a predetermined condition in a case where it is discriminated that said symbol is an LPS, and

wherein the predetermined condition is based on a probability of occurrence of an LPS corresponding to a current context.

10. (currently amended) The An image encoding method of encoding an image signal according to a JPEG2000 standard according to claim 9, comprising:

acquiring a plurality of conversion coefficients by performing wavelet conversion on said image signal;

generating a plurality of symbols representing said plurality of conversion coefficients and a plurality of contexts by performing a modeling process on said plurality of conversion coefficients obtained by said wavelet conversion; and

performing arithmetic encoding using said plurality of symbols and said plurality of contexts generated by said modeling process,

wherein said performing arithmetic encoding includes discriminating whether each of said symbols is an MPS (More Probable Symbol) or LPS (Less Probable Symbol), executing CODEMPS in a case where it is discriminated that said symbol is an MPS and executing either CODEMPS or CODELPS according to a predetermined condition in a case where it is discriminated that said symbol is an LPS, and

wherein said executing either CODEMPS or CODELPS includes:

comparing a probability of occurrence of an LPS corresponding to a current context with a predetermined threshold value;

executing said CODEMPS in a case where said probability of occurrence is greater than said threshold value; and

executing said CODELPS in a case where said probability of occurrence is not greater than said threshold value.

11. (original) The image encoding method according to claim 10, wherein said executing either CODEMPS or CODELPS further includes changing a value of said symbol in a case where said probability of occurrence is greater than said threshold value.

12. (currently amended) The image encoding method according to claim 11, wherein:

said generating said plurality of symbols and said plurality of contexts includes classifying said plurality of conversion coefficients to a plurality of bit planes and classifying said plurality of conversion coefficients to a plurality of encoding passes to thereby generate said plurality of symbols,

said threshold value is independently set for each of said plurality of encoding passes, and

said performing arithmetic encoding includes using different threshold values for said plurality of encoding passes respectively.

13. (original) The image encoding method according to claim 11, wherein said acquiring said plurality of conversion coefficients includes dividing an image represented by said image signal into a plurality of sub bands by wavelet conversion, said threshold value is independently set for each of said plurality of sub bands, and said performing arithmetic encoding includes using

different threshold values for said plurality of sub bands respectively.

14. (original) The image encoding method according to claim 13, wherein that threshold value which is associated with a sub band LL in said plurality of sub bands is set, large than those threshold values which are associated with the other sub bands and that threshold value which is associated with a sub band HH is set smaller than those threshold values which are associated with the other sub bands.

15. (original) The image encoding method according to claim 14, wherein said threshold value associated with said sub band LL is set larger than a value said probability of occurrence can take.

16. (currently amended) The image encoding method according to claim 11, wherein:
said performing arithmetic encoding further includes discriminating whether or not an encoding pass to be processed is a degrading pass to degrade an image quality as a result of execution of said CODEMPS in a case where said symbol is an LPS, in a case where it is discriminated that said symbol is an LPS, and executing said CODELPS in a case where it is discriminated that said encoding pass is said degrading pass, and

said comparing said probability of occurrence with said threshold value includes comparing said probability of occurrence with said threshold value in a case where it is discriminated that said encoding pass to be processed is not said degrading pass.

17. (currently amended) A program stored on a computer-readable medium for allowing a

computer to function as an image encoding apparatus for encoding an image signal according to a JPEG2000 standard, which comprises:

a wavelet converter which acquires a plurality of conversion coefficients by performing wavelet conversion on said image signal;

a modeling unit which generates a plurality of symbols representing said plurality of conversion coefficients and a plurality of contexts by performing a modeling process on said plurality of conversion coefficients obtained by said wavelet converter; and

an arithmetic encoder which performs arithmetic encoding using said plurality of symbols and said plurality of contexts generated by said modeling unit,

wherein said arithmetic encoder discriminates whether each of said symbols is an MPS (More Probable Symbol) or LPS (Less Probable Symbol), executes CODEMPS in a case where it is discriminated that said symbol is an MPS and executes either CODEMPS or CODELPS according to a predetermined condition in a case where it is discriminated that said symbol is an LPS, and

wherein the predetermined condition is based on a probability of occurrence of an LPS corresponding to a current context.